Office - Supreme Court, U. S.
FILED
APR 20 1943
CHARLES ELMORE CROPLEY
CLERK

IN THE

Supreme Court of the United States

OCTOBER TERM, 1942

No. 945-946 & 989

FORD MOTOR COMPANY,
Petitioner,

vs.

THE GORDON FORM LATHE COMPANY,
Respondent.

Transcript of Record

On Petition for Writ of Certiorari to the United States Circuit Court of Appeals for the Sixth Circuit

VOLUME V.

Proceedings in the United States Circuit Court of Appeals—Sixth Circuit.

I. Joseph Farley,
1664 National Bank Bldg.,
Detroit, Michigan,

Cooper, Kerr & Dunham,
Woolworth Bldg., 233 Broadway,
New York, New York,
Attorneys for Petitioner.

Lecher, Michael, Whyte & Spohn,
110 East Wisconsin Ave., Milwaukee, Wisconsin,

Richey & Watts,
Union Commerce Bldg., Cleveland, Ohio,

Swan, Frye & Hardesty,
Ford Bldg., Detroit, Michigan,
Attorneys for Respondent.

INDEX

PROCEEDINGS IN U. S. CIRCUIT COURT OF APPEALS, SIXTH CIRCUIT.

	PAGE
Entry—Causes Argued and Submitted	1
Decree—No. 9122	1
Decree—No. 9123	2
Opinion	2
Clerk's Certificate	26
Orders allowing certiorari	27

PROCEEDINGS IN THE

UNITED STATES CIRCUIT COURT OF APPEALS

FOR THE SIXTH CIRCUIT

CAUSES ARGUED AND SUBMITTED

(October 16, 1942—Before: HICKS, ALLEN and HAMILTON, JJ.)

These causes are argued by F. O. Richey and George D. Spohn for the Gordon Form Lathe Company, and by Drury Cooper, Sr. and I. Joseph Farley for the Ford Motor Company and are submitted to the Court.

DECREE—No. 9122

(Entered February 4, 1943)

Appeal from the District Court of the United States for the Eastern District of Michigan.

This cause came on to be heard on the transcript of the record from the District Court of the United States for the Eastern District of Michigan, and was argued by counsel.

ON CONSIDERATION WHEREOF, it is now here ordered and adjudged by this Court that the judgment of the said District Court in this cause be and the same is hereby modified by increasing the award to the plaintiff in the sum of $120,625.89 savings in overhead allowed by the Master to The Gordon Company and disallowed by the court and, as thus modified, is hereby affirmed.

DECREE—No. 9123

(Entered February 4, 1943)

Appeal from the District Court of the United States for the Eastern District of Michigan.

This cause came on to be heard on the transcript of the record from the District Court of the United States for the Eastern District of Michigan, and was argued by counsel.

On Consideration Whereof, it is now here ordered and adjudged by this Court that the judgment of the said District Court in this cause be and the same is hereby affirmed.

OPINION

(Filed February 4, 1943)

Before Hicks, Allen and Hamilton, Circuit Judges.

Hamilton, Circuit Judge. These are appeals from the court's rulings on exceptions to a Special Master's report in a patent accounting case.

The Master recommended that appellant in No. 9122, The Gordon Form Lathe Company, was entitled to its choice of $206,824.22 alleged profits realized by the appellee, Ford Motor Company, or damages of $120,000.00 because appellee infringed appellant's patent No. 1,542,803.

Both parties excepted to the Master's report and on final hearing the court disallowed $120,625.89 alleged savings in overhead which the Master found appellee had realized by reason of its infringement. The court sustained the Master in all other particulars. The parties will hereinafter be referred to as The Gordon Company which was plaintiff below and the Ford Company which was defendant below.

The history of the litigation invoked by the present patent is helpful to a correct decision of the issues.

The inventors, Charles Gordon and Alfred W. Redlin, filed their application for the patent on June 19, 1920, which was granted June 16, 1925. It first appears in litigation in the case of *Melling* v. *Gordon*, 4 F. (2d) 945 (C. C. A. D. C.), decided April 6, 1925, which was an action to review the decision of the Commissioner of Patents awarding priority of invention to Gordon and Redlin over the application of Herman W. Melling.

The embodiment of the invention was a lathe for turning irregular forms, specifically the camshafts of automobile engines. The core of the invention was the oscillation or tilting of the tool under the control of a master cam to maintain at all times a proper cutting angle between the upper surface of the cutting tool and the surface of the work cam. According to the opinion of the court, the patentees had manufactured and sold a number of machines in accordance with the disclosures of their application and drawings, but they did not operate satisfactorily from a commercial standpoint because from 10 to 20 percent of the camshafts turned out on them were commercially unusable and there was an excessive waste or scrap in their manufacture.

Melling's case, as the court decided it, was an attempt by him to secure an award of priority on the alleged superiority of his invention over that of Gordon and Redlin, because his machine was able to manufacture shafts with less waste than theirs and had a wider range of utility. The court said: "Neither wider range of utility nor better work are sufficient to deprive Gordon and Redlin of their right to the claims in issue."

The next litigation is found in *Melling* v. *Gordon Form Lathe Company*, 14 F. (2d) 437 (D. C. Ohio). In that case Melling instituted proceedings under the Revised Statutes, Section 4915, to compel issuance to him of a patent for an invention embodied in the patent issued to Gordon and Redlin, on the ground that the Gordon and Redlin device as described in the specifications and illustrated in the drawings was inoperative or lacked patentable novelty. The court there decided that patentable novelty was not lacking when the counts in issue

were construed broadly. The next litigation is found in *Gordon Form Lathe Company* v. *Walcott Machine Company*, 20 F. (2d) 673 (D. C. Mich.). This was a suit brought for the alleged infringement of the present patent. The court found that the patent was valid, but that the device of Walcott did not infringe. In deciding this issue, the court said: "Prior to the Gordon and Redlin invention, irregular shaped cams of automobile shafts were ground. This was an expensive and dangerous process."

On appeal this court reversed the District Court in part [32 F. (2d) 55 (C. C. A. 6)] and held that the Walcott machine infringed the present patent. In the course of the decision, Judge Hickenlooper, writing for the court, said:

> "The present patent is in a very true sense generic, and the patentee a pioneer in this particular branch of the art. The machine had commercial utility and was accepted by the trade, and its manufacture was reasonably successful until thrown into competition with the infringing machine, which avoided the chief defect, heretofore mentioned, and did not have some of the limitations of the patented device."

After this court's decision, The Gordon Company entered into a compromise settlement with the Walcott Company which had become financially involved. By the terms of the settlement, The Gordon Company accepted $1.00 for all claims of infringement and waived an accounting. In an amended final decree the Walcott Company was ordered to pay The Gordon Company $4,000.00 costs.

In August, 1922, The Gordon Company sold to the Ford Company one of its patented machines, which was delivered May 16, 1923. The Ford Company was unable to operate the machine successfully and after a fair trial it was returned to The Gordon Company. The machine was rebuilt and four months later was returned to the

Ford Company which again put it in operation but without success.

In the early part of 1924, the Ford Company purchased a battery of eighteen Walcott machines which it used in the manufacture of all its camshafts and in 1929 it purchased six others, the twenty-four machines being used until 1931, when they were replaced by milling machines designed by the Ford Company's engineer Pioch.

On June 12, 1929, The Gordon Company sent notice of infringement to the Ford Company. At that time the Ford Company owed the Walcott Company $5,926.62 balance on the purchase of machines. The contract between the Ford Company and the Walcott Company contained a patent guarantee clause. The Ford Company notified the Walcott Company of its receipt of the notice of infringement and called on the Walcott Company to defend any action against it or to pay any claim it owed by reason of infringement of the present patent, at the same time withholding the payment of the sum due the Walcott Company. The Walcott Company informed the Ford Company that it was conducting negotiations for the purchase of the Gordon-Redlin patent and when completed, all costs or damages by reason of Ford's alleged infringement would be settled.

The Gordon Company instituted this action on Nov. 29, 1930, charging the Ford Company with infringing claims 1, 2, 12, 23, 24, 28, 29, 30, 33, 34 and 38 to and including 42 of the present patent.

On the original trial, the lower court found that the Ford Company had infringed the patent by the use of the Walcott-Melling machines and also the Pioch milling machine. On appeal [*Ford Motor Company* v. *Gordon Form Lathe Company*, 87 F. (2d) 390 (C. C. A. 6)] this court modified the decree of the District Court and decided that the Walcott-Melling machine infringed all of the claims relied on except 12, 23, 24 and 38, but that the Pioch machine infringed none of them. In the opinion prepared for the court by Judge Raymond, it was said:

"Because of the sharper points of the cams as they had for many years been used in defendant's engine, plaintiff was unable with its machine, after efforts extending over many months, to accomplish more than a very moderate degree of success. Due to the necessary rapid change of position of the tool relative to the work piece as the tool passed from the lower to the upper side of the pointed end of the cam, a cut or gouge was frequently left on the lower side of the completed cam and an excess of material upon the upper side which resulted in a very considerable percentage of rejection, rendering it of dubious practical value in defendant's plant. Because of this inefficiency the Gordon machine was rejected by defendant after a long period of experimentation and the Walcott machine was substituted."

On remand, the cause was referred to a Special Master who has brought before the court a very able and complete report on the claims of the parties and a thorough discussion of the facts and the applicable law. The Master and the lower court correctly applied the rule that where the unlawful use of the patented article or process constituted infringement, the advantage, namely the savings which the infringer derived from using the invention of the patentee or his assignee over what he could derive with any other process or thing which was known prior to the invention constituted the profit which the Gordon Company was entitled to recover. *Horvath* v. *McCord Radiator & Mfg. Co., et al.*, 100 F. (2d) 326 (C. C. A. 6).

The principal issue between the parties does not relate to the correctness of the rule, but to its application, and each of the parties insists that the Master and the court failed to apply the correct standard of comparison in the light of the evidence.

The matter of shaping the cams in the Ford camshaft is of importance. The tolerance of the cams determines the degree the valves are raised or lowered in the combustion operation of the engine on which the efficacy of the motor depends.

Opinion

Prior to the time the Ford Company installed the Gordon machine, and subsequently the Walcott machines, it made camshafts by the use of a shaper, which will be described hereinafter. The shaper used to machine camshafts on the Ford Model T cars was mechanically unsuitable to rough machine those on the Model A Ford and the Fordson tractor. The Ford Company substituted the infringing devices for the shaper in machining camshafts for these two models.

Excluding the Ford shaper, prior to the Gordon patent, the art of machining a camshaft was to forge a steel shaft of the same general shape as the finished shaft, but with as much as one-fourth inch of excess metal upon it, and to reduce it to finished form by approximately fifty different operations. In the sequence of operations the shaft is centered, the concentric bearings and the parts between the cams are turned and the surplus metal is removed from the cam in two steps, a rough machining operation which removes most of the metal and a finish grinding of the shaft. The grinding was done with a single wheel surfaced with emery or carborundum rotated and oscillated to and from the material being ground, which wheel was mounted on a rocker fixture and operated on the general principle of the old grinding stone. Grinding wheels as tools are expensive because of rapid deterioration. Between these two operations the shaft is case-hardened to make its surface wear-resistant. After other operations to finish the flanges and bearings and to put on the necessary screw threads and dowel holes, the shaft is polished by grinding. The removal of excess metal from the cams always had been difficult because of their irregular shape and until Gordon's discovery, it was not considered feasible to use a lathe such as was used on the cylindrical parts of the shaft because of the poor cutting angle of the tool traveling around the nose of the cam and the sharp clearance angle required. Gordon obviated these difficulties by tilting the cutting tools of the appliance.

The parties agree that the Ford shaper is the correct standard of comparison in determining savings, if any, by the Ford Company in the manufacture of camshafts

for Model T cars. The wide difference between the parties relates to the standards of comparison to be used in machining the Model A and tractor camshafts.

The Gordon Company insists that during the infringing period the use of the Landis grinder was the only process open to the public and adequate to enable the Ford Company to obtain an equally beneficial result over the Gordon and Revlin invention in the shaping of camshafts.

The Ford Company put into the record the description of four machines, all superior to the grinder, but here insists on the Melling patent No. 1,634,550 and the redesigned shaper in the alternative as the standard of comparison.

The Master adopted the grinder tendered by The Gordon Company as the standard of comparison for the Fordson tractor camshafts. He rejected the Melling machine, patent No. 1,634,550, on the ground it infringed the Gordon patent.

By the use of The Gordon Company's standard of comparison and attributing all the savings in the cost of manufacture of camshafts to Gordon's device, The Gordon Company contends the Ford Company realized a profit of $950,000.00 by reason of its infringement. On the other hand, using the most favorable standard of comparison tendered by the Ford Company and allocating the savings in cost between infringing and non-infringing devices, the Ford Company contends that its cost of manufacturing camshafts was increased $96,000.00 by reason of using the infringing device.

The Master found that the machine embodied in Gordon's invention was not wholly successful in machining the Ford camshafts and in the former opinion of this court [97 F. (2d) 390, 391] it was stated that because of the sharper points of the cams, the Ford Company was unable, after efforts extending over many months, to accomplish any more than a moderate degree of success by the use of the Gordon machine.

The Ford Company in the course of the accounting proceedings put in evidence Melling-Walcott patents Nos.

1,512,995 and 1,655,655, both relating to patentable features included in the infringing Walcott machine, and which the patent office ruled were patentable over Gordon. Patent No. 1,512,995 was issued to Melling on October 28, 1924, on an application filed February 27, 1923, and patent No. 1,655,655 was issued to him on January 10, 1928, on an application filed October 13, 1920.

These patents are not to be confused with Melling No. 1,634,550 issued July 5, 1927, which the Ford Company put in evidence as an available standard of comparison. The first patent No. 1,655,655 was the application of the Blanchard principle, old to the art, to cam cutting machines as a patentable improvement over Gordon. According to the evidence in the record, there was a marked difference between the two machines in the actual cutting of the cam. The last patent, No. 1,512,995, related to a change in the method of tilting the tool in the Gordon machine. Referring to this patent the court said in *Gordon* v. *Walcott*, 32 F. (2d) 55, 61, it was "doubtless . . . a valuable improvement which perhaps was patentable as such."

From these facts, the Ford Company urges on us that each patent owner is entitled only to the profits the infringer has made from the use of his invention and, as it appears from the previous decisions of the courts construing Gordon's patent and also from the findings of the Master in the instant case, that the patented Gordon machine was not usable commercially by the Ford Company and it having been shown by uncontradicted evidence that the invention as disclosed and claimed was usable only with additional Melling patented improvements, The Gordon Company could not legally recover all the alleged profits and the burden rested on it to prove the amount of profits attributable to the infringement. Since The Gordon Company offered no evidence tending to allocate the profits to the different parts of the mechanism involved, the Ford Company insists that nominal damages only should be awarded. The contention of the Ford Company, if correct, as fatal to The Gordon Company's claim and

we dispose of this point before going to other phases of the case.

The present patent as heretofore found by this court is generic. [32 F. (2d) 55, 58.] Gordon and Redlin taught and gave to the industry a new method for shaping camshafts, which contributed substantially to the mass production of automobile engines. It is true that the Gordon-Redlin machine as originally described in their patent drawings and specifications had only a moderate degree of success in shaping camshafts for the Model A cars, because of the sharper points of the cams used in that model and it is equally true that Melling, a mechanic of considerable ingenuity and experience, acting on the Blanchard principle [32 F. (2d) 55, 59] improved the Gordon machine so as to make it operate with complete success.

There is such a thing as second-hand improvements. Some inventors, musing on the accomplishments of others, have unconsciously adopted their inventions as their own. Under these circumstances, the new conception is like the original but for which it never would have existed; still, it is sometimes sufficiently different from the original to to be a new thing, not a reproduction of the old and it is a creation though so to say a suggested creation.

Melling was working to improve Gordon's machine and was successful, but his accomplishment was not a creation and was not sufficiently different from Gordon's to say that the fruit of Melling's mechanical tree was the only fruit that the Ford Company gathered. Melling's improvements were not grafts on Gordon's patent tree, but only a limb upon it.

The finding of the Master that the Ford Company enjoyed a savings from its infringement of the Gordon patent is supported by the overwhelming weight of the evidence. The Ford Company does not dispute the fact that it attained substantial savings in cost through the use of the Gordon machine with the Melling improvements upon it.

Equity will not allow one who infringes a patent to escape liability therefor by making improvements upon the device and by so combining the original with the

additional improvements that each is an indispensable element in the result. The Supreme Court held in *Dowagiac Manufacturing Company* v. *Minnesota Moline Plow Company,* 235 U. S. 641, 646, that profits attributable to patented improvements belong to the owner of the patent, but insofar as they spring from other parts or features, they belong to the infringer and if the profits necessarily are commingled they are to be separated between the patent and the exclusion features. The court further held that the burden rested on the owner of the patent to take the initiative in presenting evidence looking toward apportionment.

In *Westinghouse* v. *Wagner Electric Mfg. Company,* 225 U. S. 604, 620, further consideration was given to the burden resting on the parties in apportioning profits between infringing and non-infringing devices. The court there said:

> "But when a case of confusion does appear—when it is impossible to make a mathematical or approximate apportionment—then from the very necessity of the case one party or the other must secure the entire fund. It must be kept by the infringer, or it must be awarded, by law, to the patentee. On established principles of equity, and on the plainest principles of justice, the guilty trustee cannot take advantage of his own wrong. The fact that he may lose something of his own is a misfortune which he has brought upon himself; and if, as argued, the fund may have been made by the use of other patents also, for which he may be liable in another case, it is again a misfortune which he has brought upon himself and an instance of a double wrong causing double liability. He cannot appeal to a court of conscience to cast the loss upon an innocent patentee and by judicial decree repeal the provision of Rev. Stat. § 4921, which declares that in case of infringement the complainant shall be entitled to recover the profits to be accounted for by the defendant."

In the case at bar, The Gordon Company proved that the Ford Company made profits by decreasing its manufacturing costs by using the patented machine and having shown this fact, the burden returned to the Ford Company to show that a portion of these profits was due to to the use of a part of the machine not covered by the Gordon-Redlin device. This burden it met. To this point, the respective parties have carried the burden resting on each of them, but The Gordon Company having shown the commingling of profits by the Ford Company, and it appearing that the latter company failed to keep records or to supply evidence that would disclose what proportion of the profits arose from the infringing devices and what proportion, if any, from Melling's improvements, the burden again returned to the Ford Company which it has failed to carry and such failure creates an unavoidable liability. *Horvath* v. *McCord*, supra.

Leaving the matter of apportionment between the Gordon patent and the Melling improvements, we now turn to the practical legal requirements which underlie the determination of profits growing out of the advantage to the Ford Company of using the Gordon machine over other known modes of shaping camshafts during the period of infringement. In proceedings such as these there can be no mathematical certainty, nor anything approaching it, but we should reach the degree of likelihood on which reasonable men are content to act in the every day concerns of business life.

In selecting standards of comparison, the owner of the patent must bear the burden of establishing some acceptable standard by which to determine whether there were in fact any profits at all, for obviously the patentee is entitled to recover only profits measured by gains or savings which are attributable to the use of his invention in comparison with other available means. *Mowry* v. *Whitney*, 81 U. S. 621, 651. The Gordon Company urges that, as the Master found the grinder was an available method of machining the Model A camshafts during the infringing period, it has thus fully carried the burden of selecting a standard of comparison. To this we agree.

In determining what is a proper standard of comparison in a particular case, it is unnecessary for the owner of the patent to prove affirmatively that at the time of the infringement, a particular process or thing was better than any other except his invention. This requirement would be unreasonable because impossible of performance. It would entail evidence to prove a negative, i. e., the existence of a better process or thing than the one fixed upon and likely it would be impossible to prove that nothing better existed anywhere. The usual procedure is for the plaintiff to select an acceptable standard of comparison and to offer evidence to prove the advantage derived by the defendant from the use of plaintiff's invention over what he could have derived from the standard selected.

Under the facts of this case, the burden shifted to the Ford Company to prove the availability to it of a machine or process superior to that of the grinder tendered by The Gordon Company. To meet this burden, the Ford Company offered in evidence as the best standard of comparison the patent to Melling No. 1,634,550, issued July 5, 1927, on an application dated July 19, 1920. The Model A camshafts were placed in production in November, 1927.

Melling's patent was a modification of the device this court held infringed the Gordon patent and differed from the infringing device in that the tool was fixed in a vertical bar which was attached at the end to two parallel arms, one of which contacted the master cam overhead causing the entire tool to move up and down in a parallel position instead of pivoting upon an axis. A constant angle between tool and work was not obtained with the parallel type head but the variation was not great enough to cause inefficient cutting. Many machines embodying the Melling patent No. 1,512,995 were manufactured and sold by the Walcott Company to avoid the effect of the decree of infringement of this court against it. The cutting tool in them was not mounted exactly as defined in Gordon's claims and did not tilt or pivot upon an axis but instead moved in and out and was controlled by a cam. The machine was adaptable to shape cam-

shafts on Model A and Fordson tractors and was superior to the machines in use at the time Gordon obtained his patent.

The Master rejected the Melling patent as a standard of comparison on the ground that it infringed the Gordon patent. His conclusion was supported by the testimony of the Ford Company's chief tool designer, Pioch, who stated that after inspecting the Melling machine in operation, in his opinion its modified heads did not differ sufficiently from the tilting type tool of the Gordon machine to avoid infringement. The trial court approved the Master's finding in this respect.

The Ford Company at no time used this device although it was available to it after this court decided that the original Walcott machine infringed Gordon. It is shown by the evidence that the responsible officers of the Ford Company avoided its use because of probable infringement.

As we have heretofore pointed out, the heart of the Gordon invention was the oscillating or tilting of the cutting tool under the control of a master cam. Gordon's claims, which have been sustained in previous decisions of our court, variously describe means for "varying the angular relation of the tool to the work" "swinging" the tool and tilting it.

The cutting tool described by Melling does not tilt or swing on a pivot but its movement is under the control of a cam which is adapted to impart an alternating or variable motion to the cutting tool by sliding or rolling contact with the shaping metal. For all practical purposes, it produced the Gordon result.

Gordon's invention was generic and in his patent application he described what he conceived to be its best form. He also anticipated it could be used in other forms and proportions. In view of the scope of his claims and the basic character of his invention, the law secures him against imitation by other forms and proportions. We cannot say the findings of the Master supported by the trial judge were clearly erroneous. Federal Rules of Civil Procedure, Rule 53e(2), U. S. C. A. Title 28, fol-

lowing Section 723(c); *Adamson* v. *Gilliland,* 242 U. S. 350, 353; *Coupe* v. *Royer,* 155 U. S. 565, 579.

The Pioch shaper designed and used by the Ford Company to machine camshafts for Model T cars employed a group of ordinary shaper tools, the shaft being fed past them in order that each tool would remove a shaving of metal off the face of the cam parallel to the axis of the shaft. The shaft rotated so that fresh uncut metal contacted the tools for each of their cutting strokes. During this operation, the tools were mechanically adjusted to move toward and away from the axis of the shaft so as to follow the contour of the cam. Simply stated, it was a shaping operation crosswise of the peripheries of the cams as distinguished from a removal of the metal circumferentially thereof by rotation of the work against the cutters. Each tool performed its cutting stroke while the bed was traveling in one direction and on the return stroke each tool was raised slightly from the work to prevent its point being dragged backwardly across the work. On the return strokes the shaft was automatically rotated slightly to cause the tool to remove or cut off a small chip or slice of metal on its next cutting stroke.

The machine which the Master adopted as a standard of comparison differs from the original shaper principally in the mounting of the cutting tools, each of which is located to cut in the opposite direction of the parallel tool. Additional changes made the two strokes of the ram of equal duration and each cutting tool was relieved individually on the non-cutting stroke. Under the old shaper they were relieved simultaneously. This modified shaper was an adaptation of an original created by a Ford engineer whose work was a graft on the old shaper. He designed it in 1919 for use on tractor cams. No machine was built or put in operation from either of these designs.

The Gordon Company urges the rejection of the Master's selection on the ground that the elaborate mechanism requiring simultaneous cooperation between the respective parts of the machine is meagerly and sketchily outlined and that even in the dimness of its description it may be discerned that the mode of operation of the

machine involves the timing of the increase and decrease of the length of each tool holder in synchronism with the back and forth movement of the shaft and the movements of the companion tools, which operation was a stranger to the original shaper. It also insists that the description of the operation of the machine points out that half of the cams are machined in one direction and the other half in another which was also not done in the original shaper. It urges that the similarity between the modes of operation of the original and the redesigned shaper is found only in that the cutting tools in each machine cut off the surface of the cam in a horizontal movement of the camshaft.

The Gordon Company also insists there is no evidence in the record showing that the redesigned shaper was usable for making camshafts for the Model A cars or the Fordson tractor and it further insists that an examination of the model and drawings of the proposed redesigned shaper shows that it was impracticable for shaping camshafts. We cannot agree to these contentions.

The Ford Company introduced in evidence drawings of the redesigned shaper and a model of it. Four experienced mechanics and tool designers, three of whom were employees of the Ford Company and the other a former employee, testified in substance from the drawings and the model that the redesigned machine contemplated only the rotation of the four tools in order that they would perform their cutting strokes on the return stroke of the table, which they stated was a simple mechanical expedient to change the raising and lowering of the four tools in accordance with that portion of the table stroke with which they were to cut. They testified that each tool performed its cutting operation precisely as in the earlier shaper, each cutting as the result of the reciprocation of the cam beneath its cutting edge and that they produced the required non-geometric form or contour under the control of the specially designed cam operated in synchronism and by the same detailed mechanism as in the original machine, with the interposition of a common wedge.' The Gordon Company introduced no evidence on

the lack of utility of the redesigned shaper, but relied on the testimony of Ruby E. Herklotz, a former die and tool maker and at the time of the trial assistant purchasing engineer in the engineering purchasing department of the Ford Company, who had testified in the infringement case that the Ford cam shaper was not usable on the Model A or tractor shafts.

On the evidence, the Master found, which finding was concurred in by the trial court, that the redesigned shaper was workable and could be efficiently used for the making of Model A camshafts. The utility of the appliance was a question of fact and as the Master's conclusion was supported by substantial evidence it should be accepted. Federal Rules of Civil Procedure, 53e(2), 28 U. S. C. A. following Section 723c.

The legal question presented is whether a paper aggregation assembled after infringement and not reduced to practice can be dated back and used as a standard of comparison affecting the earlier supposed valuation. The processes developed by manufacturers create a constant demand for new machines which the skill of ordinary mechanics and engineers is generally adequate to devise. Many new machines come into use as a natural and proper outgrowth of the applied skill of mechanics and engineers. Shapers are old in the machine tool art and they have been used for not only light, but heavy, cutting. They are subject to the disadvantage in use that no work is performed on the return stroke of the cutting tool and difficulties are encountered in their use for contoured shaping.

The Ford Company overcame the difficulty in using them for contour shaping in making camshafts for the Model T car and from the evidence in the record, it is fairly proven that the skilled mechanic and engineer could so make them function by the same process and method on Model A shafts.

There are various judicial pronouncements on what is an acceptable standard for comparison on profits. In *Mowry* v. *Whitney*, supra (81 U. S. 620, 651), in referring to the period of infringement, the court said it must be a device "then open to the public." In *Sessions* v. *Ro-*

madka, 145 U. S. 29, 45, the court said it must be a device "known and in general use anterior to the date of the patent." In *Black* v. *Thorne*, 111 U. S. 122, 124, the court said the device must be in "common use and produce the same result." None of the reported cases, so far as we have been able to discover, are determinative of the precise question here presented.

In ascertaining the profits arising from the use of a patented machine by comparison with machines competing with the patentee's conception, we are dealing with practical business matters and our result should not be an unreasonable one which leads to hardship, injustice or absurdity. The standard of comparison set up by an infringer need not to have been used by him at any time and in such cases the evidence of the utility of the device as compared with the invention in suit, may be drawn from persons who have used the two under similar conditions, or from any other source, which is capable of furnishing convincing proof on the point. *Tilghman* v. *Proctor*, supra (Op. page 152), The proposition is akin to the doctrine of novelty being negatived in infringement cases by prior paper patents or printed publications. In determining standards of comparison for the purpose of ascertaining profits, if the concept of the proposed standard of comparison is full enough and precise enough to enable any person skilled in the art to which it relates to make the thing set up as a standard of comparison, it is sufficient. As applied to the facts of this case, we are of the opinion that the Ford Company was entitled to use as a standard of comparison any aggregation open to the public during the infringing period, even though it required the carrying forward of an original conception, where the change was only in form, proportion or degree, and where the new aggregation performed the original function in substantially the same way as the old, and this is true regardless of whether the specific device was put in actual use. In other words, Ford's field for selection embraces all that was a part of the art at the time it appropriated Gordon's invention whether reduced to actual practice or

not. *National Tube Company* v. *Mark*, 10 F. (2d) 430 (C. C. A. 6).

The Master's selection of the shaper as a standard of comparison for the Model A car was not inappropriate.

The Ford Company urges on us that the Master erred in adopting a different standard of comparison for the Fordson tractor, and that he should have used the same standard as was applied for the Model A camshafts.

The Master used the Landis grinder as the standard of comparison for the Model F tractor camshafts, which resulted in awarding to the Gordon Company $65,448.31 alleged saving realized by the Ford Company in the use of the Melling-Walcott machines in the years 1925 to and including 1928. The Ford Company commenced the production of tractors in 1919 and until 1924 at which time it adopted the Melling-Walcott machines, it used the Landis grinder for shaping camshafts on this model. The Master concluded that because tractor production by the Ford Company was small compared to its production of Model A cars and that the manufacture of tractors was a venturesome and expensive undertaking, the Ford Company would not have used the shaper although one could have been built and used.

It appears from the evidence that the designing and construction of new machine tools by skilled mechanics and engineers is tedious and costly and that special design machines are junked when the object of their creation is attained.

The Master's findings on this branch of the case are in the nature of inferences and deductions and are not so weighty as his findings on the utility of the shaper for Model A camshafts. Upon a full consideration of the whole matter, we have concluded there is enough evidence in the record to make applicable the rule that the presumption is in favor of the correctness of the Master's report on the facts.

The predicate of the standard of comparison is that the trespasser would have used the comparative device, but for his infringement and the undisputed evidence shows that the Ford Company used the Landis grinder

for making tractor camshafts until it commenced the use of the Melling-Walcott machines, although at the same time it was using the shaper in making camshafts for Model T cars. The fact that it was using the Landis grinder at the beginning of the period of infringement lends substantial support to the Master's conclusion that the grinder was the appropriate standard of comparison.

The Ford Company in its accounts claimed $65,263.46 direct labor cost of straightening camshafts thrown out of alignment in the course of shaping which cost it claims was an increased cost incurred by the use of the Melling-Walcott machines over the shaper. The Master disallowed this item of expense. The Ford Company urges on us that in this particular instance, the Master violated the well-established rule that in determining profits by comparative standards, the infringer is entitled to deduct the increased expense, if any, of using the new process over the old, ascertained by the manner in which the infringer ordinarily conducts his business. (*Tilghman* v. *Proctor*, supra, Op. p. 151.)

The Master found that the Ford Company used an additional straightening operation on the shafts after it began using the infringing Melling-Walcott machines, and that the labor cost thereof was the amount claimed by the Ford Company in its accounts but he found that the additional operation was not attributable to the difference between the use of the infringing machines and the shaper. The witnesses for the Ford Company testified that the infringing machines could have been made to operate precisely as the shapers with the installation of steady rests, which would have eliminated the additional straightening operation. The item here claimed, if allowed, would largely make up the loss which the Ford Company insists it sustained by the use of the infringing devices instead of the shaper, and it is a fair presumption if its contentions are sound, it would have preferred to use the shaper rather than the infringing device.

Every reasonable presumption is in favor of the Master's report as to profits made by an infringer based

on oral testimony and his report is not to be set aside unless error clearly appears. We find no such error.

The Ford Company complains that the Special Master without evidence to support his findings, reduced by eighteen percent, the output of shafts per hour in the use of the Ford cam shaper for machining Model A camshafts under the actual production of the Model T camshafts.

The Master was compelled under the circumstances of the case to deal in presumptions. The comparative modified shaper for machining Model A camshafts had not been put in actual operation. The burden rested on the Ford Company to establish by clear and convincing evidence the fact that the modified shaper would produce the same output of Model A shafts per hour as the one used for shaping Model T shafts. We have critically examined the evidence on this subject and conclude that the Ford Company did not carry the burden resting on it.

The Ford Company also complains that the Master erred in finding that the figure of 37.5 shafts per machine hour or 75 per man hour was the life of a grinding wheel used in making the tractor camshafts. The evidence on this subject was conflicting, a part of which supports the Master's findings. The error assigned is unavailing.

The Master found that the Ford Company reduced overhead charges $120,625.89 by use of the Melling-Walcott machines in camming shafts. The Master ascertained this sum by reducing the overhead expense as shown by the records of the Ford Company in the same proportion that direct labor cost and time were reduced by the use of the infringing machines.

The court sustained the Ford Company's exceptions to the Master's finding in this particular on the ground that there was no evidence to support such finding. The Gordon Company urges that the Master should be sustained. We have to decide whether there is any necessary corollation between labor costs, time and overhead. Under the Ford Company's regular system of accounting, it divided cost of production into two classes: (1) administrative and selling expense, (2) manufacturing expense.

The former is not material to the question we have here.

The purpose of the cost accounting system of the Ford Company was to determine the selling price of its automobiles or tractors and also their component parts and to fix inventory value for income tax purposes. Its accounting method was not used to reflect actual cost of production. The camshafts for the Ford cars passed through several of the Ford Company's manufacturing departments before being finished. Once every two or three months during the accounting period, manufacturing cost of each component part of the automobiles and tractors was determined and entered on cost summary cards classified separately (1) material, (2) direct labor and (3) overhead. In applying this system to the manufacture of camshafts, material represents the cost of the raw product, direct labor represents the wages paid to the operators of the machines. The latter is determined by dividing the total time of all direct labor in the department for the month in question by the number of shafts produced and multiplying the result by the average departmental wage to express the labor cost per unit in dollars and cents. Overhead was classified into thirty-one items[1] some of which, such as depreciation, were charged directly to the Department where the production machine was located. Other items falling into more than one department were computed on the whole factory and then apportioned among the different departments, the rule of apportionment being based as to some items on the building area, direct labor, etc. The

[1] Administrative salaries; depreciation and land improvements; depreciation of buildings; depreciation of machinery; depreciation of durable tools; depreciation of factory and miscellaneous equipment; depreciation of freight car equipment; depreciation of locomotive equipment; depreciation of power equipment; insurance; experimental engineering and designing; moving and re-arranging department; factory supervision; final inspection; miscellaneous manufacturing expense; power operations; repairs to land improvements; repairs to buildings, fixtures and structures; repairs to machinery; repairs to durable tools; repairs to factory and miscellaneous equipment; repairs to freight car equipment; repairs to locomotive equipment; repairs to power equipment; expense of tools; insurance (employees' liability and compensation); sweeping and cleaning; taxes (state, city and county); miscellaneous services for employees; timekeeping, pay rolls and factory clerical salaries."

total overhead expense in the department was divided by the total direct labor expense resulting in departmental percentage rates of burden to direct labor which was used in turn in computing overhead cost per unit.

The Master found the shaft production per hour per man on the Melling-Walcott machines and similar production on the comparative machines and using the increased production on the infringing machines as the base and applying the formula used by the Ford Company in its regular accounting practice as above outlined, he determined the Ford Company realized a savings in overhead which was in direct proportion to the increased production per man hour by use of the infringing machines.

The Ford Company insists that three items only, namely, depreciation of machinery, repairs to machinery and expense of tools, could have been affected by the use of the infringing machines and that as in its statement of account which it was ordered to file, it gave full consideration to these items and there was no evidence refuting its statement in this particular, the Master was required to accept it.

The question resolves itself as to whether the percentage of direct labor cost method combined with time may be applied under the circumstances of this case in determining the savings of the Ford Company by the use of the infringing devices.

The findings of the Master that the production of cam roughing operations for the Model T camshaft was increased by the use of the Melling-Walcott lathes over the Ford shapers from fifty to seventy-five shafts per hour per man, on the Model A camshaft from thirty-six to sixty, and on the tractor camshafts from eight to forty are supported by substantial evidence. His finding that departmental overhead expense was not increased by the use of the infringing machines is likewise supported by the evidence. The inescapable inference from the facts is that the Ford Company was able with the same overhead organization and with reduced capital expenditure to increase substantially the production of

camshafts per hour by the use of the infringing machines. It is a matter of common knowledge that all well-managed manufacturing businesses recognize overhead costs as financial outlays expended in the production of an article or process. It is certain that the Ford Company gained an advantage in overhead by the use of the infringing machines and that under settled rules of law the Gordon Company is entitled to this savings or advantage measured in money.

There is probably no single phase of determining cost of manufacturing a device or machine which is more elusive or difficult than the allocation of overhead to a particular article. The impossibility of precise allocation is generally recognized and the law is not so exacting as to require a delicately balanced scientific method of determination, which reaches a mathematical certainty.

Inasmuch as overhead is impossible of direct application, manufacturers have devised and used methods for its allocation which have proven by experience to be remarkably accurate. By the use of these methods industrial executives are enabled to distinguish profitable units of production from those without profit, to eliminate wasteful methods, to measure deviations from standard performance, to calculate the best method of material handling and to establish selling prices upon the sound basis of cost of production. In arriving at a just conclusion on the matter we are considering, we know of no better rule to aid us than the one applied by manufacturers in the daily conduct of their business.

The cost of manufactured products consists of the sum of direct costs, that is, direct material and direct labor, plus indirect costs, or manufacturing expense. Because of its indirect and general nature, manufacturing expense cannot be charged directly to each production order as can direct material and direct labor. It must therefore be distributed over production in such manner that each kind of product and each lot of work produced will be charged with its fair share of the indirect expense.

The direct labor and time cost method of distribution of manufacturing expense used by the Master is based

on the theory that the relationship between manufacturing expense and the direct labor cost incurred and time consumed in production are so related that by the use of this method the manufacturing cost will be fairly distributed over the entire output and may be allocated to each item with reasonable certainty. This method is widely used by manufacturers and gives very satisfactory results if the percentage is properly predetermined. Lawrence on Cost Accounting, Prentice Hall, ch. 15, pages 216 to and including 231. There is no issue raised here as to the correctness of the percentages.

In the absence of any better rule or more weighty evidence, we are of the opinion that there is sufficient correlation between direct labor costs, time and overhead expense to prove the allocation of manufacturing costs to a unit of production. As we view it, the Master adopted a fair rule for determining the savings in overhead of the Ford Company by reason of its use of the infringing machines.

In any event the Master followed the Ford Company's own method of accounting to determine the apportionment of manufacturing overhead to the production of camshafts. The method used may not accurately prove the cost but it is the best approximation that can be made under the evidence. *Duplate* v. *Triplex,* 298 U. S. 448, 458. The court should have sustained the Master in this particular.

The Master awarded The Gordon Company damages based upon a reasonable royalty of $5,000.00 a machine, or $120,000.00. The Ford Company urges on us that there is no substantial evidence to support the Master's findings of any sum in damages. The Gordon Company insists that the damages based upon a reasonable royalty should be six cents per shaft or $480,140.04 and it further insists that the damages should be trebled under the Patent Act (Title 35, U. S. C. A., Secs. 67 and 70).

All of these questions are interrelated and may be disposed of collectively. The Master's findings are based upon evidence and inferences reasonably drawn. As appears from his report, he sought to give proper weight to all considerations. His estimates upon the record

could be an approximation only, but aside from any question of the propriety of the precise method of determining damages, there can be no doubt the result has support in the evidence and does full justice to The Gordon Company. The Master's findings have been approved by the court, we accept them in the absence of clearly recognized mistake. *Topliff* v. *Topliff*, 145 U. S. 156, 174.

The judgment in No. 9122, The Gordon Form Lathe Company v. Ford Motor Company, is modified by increasing the award to the plaintiff in the sum of $120,625.89 savings in overhead allowed by the Master to The Gordon Company and disallowed by the court. The judgment thus modified is affirmed. The judgment in No. 9123, Ford Motor Company v. The Gordon Form Lathe Company, is affirmed.

UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SIXTH CIRCUIT

I, J. W. Menzies, Clerk of the United States Circuit Court of Appeals for the Sixth Circuit, do hereby certify that the foregoing is a true and correct copy of record (Vols. I, II, III and IV) and Proceedings (Vol. V) in the cases of *The Gordon Form Lathe Company* v. *Ford Motor Company; Ford Motor Company* v. *The Gordon Form Lathe Company*, Nos. 9122 and 9123, as the same remains upon the files and records of said United States Circuit Court of Appeals for the Sixth Circuit, and of the whole thereof.

In Testimony Whereof, I have hereunto subscribed my name and affixed the seal of said Court at the City of Cincinnati, Ohio, this 24th day of March, A. D. 1943.

J. W. Menzies,
Clerk of the United States Circuit Court of Appeals for the Sixth Circuit.

(seal)

SUPREME COURT OF THE UNITED STATES, OCTOBER TERM, 1943

No. 49

ORDER ALLOWING CERTIORARI—June 21, 1943

On Petition for Writ of Certiorari to the United States Circuit Court of Appeals for the Sixth Circuit

This Court on June 7 having granted certiorari in this case limited to the first question presented by the petition, and counsel for petitioner having filed a petition for rehearing to broaden the scope of review;

On consideration whereof, it is ordered by this Court that the petition for rehearing be, and the same is hereby, granted. The order entered June 7 is vacated, and the petition for writ of certiorari herein is granted.

It is further ordered that the duly certified copy of the transcript of record which accompanied the petition shall be treated as though filed in response to such writ.

Mr. Justice Roberts and Mr. Justice Douglas took no part in the consideration or decision of this application.

SUPREME COURT OF THE UNITED STATES, OCTOBER TERM, 1943

No. 50

ORDER ALLOWING CERTIORARI—June 21, 1943

On Petition for Writ of Certiorari to the United States Circuit Court of Appeals for the Sixth Circuit

This Court on June 7 having granted certiorari in this case limited to the first question presented by the petition, and counsel for petitioner having filed a petition for rehearing to broaden the scope of review;

On consideration whereof, it is ordered by this Court that the petition for rehearing be, and the same is hereby,

granted. The order entered June 7 is vacated, and the petition for writ of certiorari herein is granted.

It is further ordered that the duly certified copy of the transcript of record which accompanied the petition shall be treated as though filed in response to such writ.

Mr. Justice Roberts and Mr. Justice Douglas took no part in the consideration or decision of this application.

(7177)